

Message

From: Fernandez, Cristina [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=5D527D0DD7E24EB5B1777B00A8EE6B2A-CFERNAND]
Sent: 5/11/2021 4:19:23 PM
To: Sternberg, David [Sternberg.David@epa.gov]
Subject: RE: MEDIA QUERY: Gazette-Mail/Union Carbide & Toxic Release Questions

OK, thanks.

Cristina Fernandez, Director
Air & Radiation Division (3AD00)
U. S. Environmental Protection Agency, Region 3
1650 Arch Street
Philadelphia, PA 19103-2023
Work: (215) 814-2178
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From: Sternberg, David <Sternberg.David@epa.gov>
Sent: Tuesday, May 11, 2021 12:17 PM
To: Fernandez, Cristina <Fernandez.Cristina@epa.gov>
Subject: FW: MEDIA QUERY: Gazette-Mail/Union Carbide & Toxic Release Questions
Importance: High

Hi Cristina,

The short answer to your question is yes. Quite extensively actually.

David

From: Nitsch, Chad <Nitsch.Chad@epa.gov>
Sent: Monday, May 10, 2021 5:42 PM
To: Sternberg, David <Sternberg.David@epa.gov>
Cc: White, Terri-A <White.Terri-A@epa.gov>; Landis, Jeffrey <Landis.Jeffrey@epa.gov>
Subject: FW: MEDIA QUERY: Gazette-Mail/Union Carbide & Toxic Release Questions
Importance: High

David,

Please use the responses below to respond to the reporter. These are HQ approved.

Thank you,

Chad Nitsch
Director, Office of Public Affairs
US Environmental Protection Agency – Region 3 (Mid-Atlantic: WV, VA, PA, MD, DE, DC, and 7 federally recognized tribes)
215-814-5434

From: Nitsch, Chad
Sent: Monday, May 10, 2021 5:41 PM
To: Dunton, Cheryl <Dunton.Cheryl@epa.gov>; Beal, Madeline <Beal.Madeline@epa.gov>
Cc: Press <Press@epa.gov>
Subject: RE: MEDIA QUERY: Gazette-Mail/Union Carbide & Toxic Release Questions

We will respond to the reporter with these HQ approved responses. Thank you.

Chad Nitsch
Director, Office of Public Affairs
US Environmental Protection Agency – Region 3 (Mid-Atlantic: WV, VA, PA, MD, DE, DC, and 7 federally recognized tribes)
215-814-5434

From: Dunton, Cheryl <Dunton.Cheryl@epa.gov>
Sent: Monday, May 10, 2021 5:31 PM
To: Beal, Madeline <Beal.Madeline@epa.gov>; Nitsch, Chad <Nitsch.Chad@epa.gov>
Subject: RE: MEDIA QUERY: Gazette-Mail/Union Carbide & Toxic Release Questions

Here's why my mgmt. approved. Feel free to use what's helpful.

- 1. The EPA says ethylene oxide releases decreased 29% from 2007 to 2019, but according to its facility report, the South Charleston Union Carbide facility released three times more ethylene oxide in 2019 than it did in 2010. Does EPA know what is causing this increase, and does it run counter to ethylene oxide emissions trends nationwide?**

The Union Carbide facility located at 437 MacCorkle Avenue, SW in South Charleston West Virginia (zip code 25303) reported it released 756 pounds of ethylene oxide onsite to air during 2019. This same facility reported that it released 239 pounds of ethylene oxide onsite to air during 2010. EPA does not know why this facility released more ethylene oxide to air during 2019 than it did during 2010. However, such fluctuations in the quantities of a chemical a facility released during different years is not uncommon. Changes in production or processes, for example, may lead to changes in the quantities of TRI chemicals a facility reports as released or otherwise managed as waste from one year to another. This same facility reported that it released 1,657 pounds, 1,397 pounds and 1,385 pounds of ethylene oxide onsite to air during 2014, 2015, and 2016, respectively, and 710 pounds, 776 pounds and 756 pounds during 2017, 2018 and 2019, respectively. These data demonstrate the fluctuations in quantities released during different years and also a downward trend from 2015-2019, which is consistent with the 29% decrease nationally the EPA reported. This facility files TRI reports for many other chemicals, and the quantities of these chemicals reported as released by the facility vary from year to year as well.

See <https://enviro.epa.gov/facts/tri/ef-facilities/#/Facility/25303NNCRB437MA> or <https://echo.epa.gov/detailed-facility-report?fid=110000745114> for more information related to this facility.

- 2. The RSEI score in 2019 for the Union Carbide facility in Institute, W.Va. was 350,377 and the RSEI score for the Union Carbide facility in [South Charleston] W.Va. was 732,408. The U.S. median was 14. How should local residents think about that discrepancy in RSEI scores?**

There is no discrepancy in the RSEI Scores. There are differences in the RSEI Scores. The two above-mentioned RSEI Scores (350,377 for Union Carbide Corp Institute facility and 732,408 for Union

Carbide Corp South Charleston facility) are the respective total aggregated facility-level RSEI Scores calculated for all TRI chemicals reported as released by each of the facilities for all RSEI modeled media- and exposure-specific pathways for each of the two facilities. These RSEI Score calculations account for the magnitude of all of the chemical releases, the environmental fate and transport of the chemicals released, the size and location of the exposed population, and the inherent toxicities of each of the chemicals.

In regard to the above mentioned facility-specific RSEI Scores, for each facility the chemical that contributes the most to the respective overall RSEI Scores is ethylene oxide, specifically the onsite releases of ethylene oxide to air, accounting for more than 95% of the total facility-level RSEI Score for each facility for 2019. However, what is different between the two facilities are the specific types and quantities of these ethylene oxide air emissions. The Union Carbide Corp South Charleston Facility located at 437 MacCorkle Avenue, SW, (zip code 25303) in South Charleston, West Virginia reported it released a total of 756 pounds of ethylene oxide to air: 684 pounds of which was in the form of fugitive (non-point source) air emissions; and 72 pounds in the form of stack (point source) air emissions. The other facility, the Union Carbide Corp Institute facility in Institute, West Virginia (zip code 25112), reported it released a total of 901 pounds of ethylene oxide to air: 458 pounds of which was in the form of fugitive (non-point source) air emissions; and 443 pounds in the form of stack (point source) air emissions. Generally, people living close to a facility are more likely to be exposed to fugitive emissions of a chemical to air than to stack emissions of the same chemical because fugitive emissions tend to occur closer to ground level. Fugitive air emissions are modeled in RSEI as a ground-level area source while stack air emissions are modeled using facility- or industry-specific stack parameters (such as stack height, stack diameter, exit gas velocity, etc.) to estimate chemical concentrations downwind of a facility. Both types of these air emissions are modeled using AERMOD in RSEI.

While intuitively it may seem the Union Carbide Corp Institute Facility in Institute, West Virginia would have the higher RSEI Score because it released a larger quantity of ethylene oxide to air than the Union Carbide Corp South Charleston Facility in South Charleston, West Virginia (901 pounds vs. 756 pounds, respectively), there are other factors that explain why the Union Carbide Corp Institute Facility has a lower RSEI Score. Firstly, the South Charleston Facility's fugitive emissions of ethylene oxide were nearly 50% larger than those of the Institute's facility (684 pounds vs 458 pounds). The larger fugitive emission quantities of ethylene oxide from the South Charleston Facility are more likely to lead to greater exposure. Secondly, it appears that more people live in the vicinity surrounding the South Charleston facility compared to the vicinity surrounding the Institute facility. In a 5-mile radius around the center point of the two facilities, the respective population densities are estimated to be 989 people/square mile and 861 people/square mile for the South Charleston facility and the Institute facility, respectively (citation TRI Search). Since the South Charleston facility has a relatively larger contribution of fugitive air emissions to stack air emissions than the Institute facility, and the population density near the South Charleston facility is greater than the population density near the Institute facility, it is understandable why the South Charleston facility's RSEI Score is larger than that of the Institute facility.

3. The Union Carbide facility in Institute's release of nitrate compounds has increased significantly in recent years, from 171,744 in 2016 to 585,489 in 2019. Does EPA have any insight into why and what the potential health risks are from nitrate compound releases?

These release quantities of nitrate compounds were in the form of surface water discharges. The TRI data and information submitted to EPA by the Union Carbide Corp Institute facility for reporting years

2016-2019 do not provide any specific reasons why the reported quantities of TRI-reportable nitrate compounds discharged to surface water have been increasing from 2016 to 2019.

Exposure to nitrate compounds via oral consumption (e.g., from consumption of contaminated drinking water) may lead to bacterial-mediated conversion of nitrate to nitrite within the gastrointestinal system, which in turn may result in the formation of methemoglobin and eventually methemoglobinemia, a condition characterized by excessive quantities of methemoglobin in the blood. Methemoglobinemia can lead to not enough oxygen getting to one's cells and bodily tissues, which can eventually lead to adverse sequelae. More information on nitrate-induced methemoglobinemia is available from EPA's IRIS database:

https://cfpub.epa.gov/ncea/iris/iris_documents/documents/subst/0076_summary.pdf

- 4. What environmental justice concerns, if any, does EPA have about Kanawha County, W.Va., whose poverty rate was nearly 6% higher than the national average in 2019 and which had four of the 41 Census tracts with the highest total cancer risk nationwide in the 2014 NATA?**

USEPA is aware of the public health and environmental conditions in Kanawha County and cares about residents' wellbeing. The Biden administration has emphasized environmental justice (EJ) and public health across the federal family, and EPA Administrator Regan has made EJ a top priority for the agency. EPA will be looking at this issue from a holistic environmental justice perspective so that we can support community driven approaches to this and other challenges facing the community. The agency is focusing on developing a comprehensive plan to provide outreach to the affected communities and will use various tools, strategies and stakeholder partnerships to ensure that communities are meaningfully involved in this process, as we consider methods to address the concerns.